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[0007] The interlabial pad, fixed by inserting it between the labia, has characteristics that it is difficult to cause the leak of menstrual blood because of higher adhesion to the body than that of the sanitary napkin and psychological resistance thereof on wearing is lower than that of the tampon which is inserted into the vagina.

[0008] However, interlabial pads have a drawback that it is more difficult to wear them than sanitary napkins because interlabial pads are wrapped in the interlabial space whose visual check is difficult. Further, if an interlabial pad is not worn to an appropriate point, menstrual blood leakage results in immense damage because the interlabial pad is smaller than the sanitary napkin. Furthermore, the interlabial pad is more likely to be mis-worn than the tampon.

[0009] With regard to the present inventions for dissolving wearing troubles in interlabial pads, pct international publication no. Wo99/56689 discloses a pad having a structure that a projection is formed on the opposite side to the body-contacting surface. With this structure, a wearer can wear a pad by taking the projection with fingers. It is supposed that that this kind of pad can be worn more readily than a pad without a projection. (refer to FIG. 31)

[0010] It is required to take the projection of a pad with at least two fingers such as a thumb, a forefinger or others for wearing such a interlabial pad. So, balls of fingers (fingerprint sides) having a fineness of perception are used to take the projection and positioned on the side face of the projection. More specifically, the wearer should detect the wearing point with the tips of her nails when fixing an interlabial pad. So, actually, a wearer should trust her intuition and it is rather difficult for her to detect an appropriate wearing point. Especially, females often let their nails grow long or wear artificial nails. So, in some cases, it is almost impossible to fix conventional interlabial pads provided above to an appropriate point.

[0011] As just described, easy wearing through correct detection of a wearing point, reduction of mis-wearing and sufficient adhesion onto the pubic region have not been

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realized by the conventional interlabial pads provided above. Further, there are still cases where menstrual blood adheres to fingertips when fixing a pad, causing psychological oppositions to use an interlabial pad.

[0012] Furthermore, conventional interlabial pads provided above are likely to be misaligned to the interlabial space because the position of fingers to take pads is not stable, resulting in a risk of mis-wearing.

SUMMARY OF THE INVENTION

[0013] The present invention has been made to solve the problems provided above. An object of the present invention is to provide an interlabial pad with a structure that is capable of wearing the pad securely and sanitarily to the interlabial space of females.

[0014] The above objects can be attained, according to the present invention, by an interlabial pad comprising: a structure that an interlabial pad is fixed in such a way that it contacts the pubic region by using dexterously a ball of a finger having a fineness of perception to check the fixing point, more specifically, a structure that a finger insertion opening into which a finger can be inserted contacting a side of an interlabial pad opposite to the body and a finger insertion opening connected thereto are provided, and a stopper to prevent further insertion of a finger is provided in the finger insertion opening at a position capable of fixing an interlabial pad effectively, in order to wear an interlabial pad to the interlabial space with a positional relationship of a finger to an interlabial pad being stable and smoothly fix an interlabial pad to the interlabial space.

[0015] More specifically, the present invention provides the following features:

[0016] An interlabial pad capable of absorbent body fluid formed into a substantial rectangle having a longitudinal direction and a lateral direction provided with a size, weight and flexibility allowing to be pinched and held in between the labia without forcing, comprising a body side face orientated to the body side and an opposite side face

[0017] wherein the interlabial pad has a finger insertion cavity, formed along the longitudinal direction on the opposite side face to body, for inserting a finger of the wearer, and an opening portion of the finger insertion cavity constitutes a finger insertion opening for directly securing an opening in the fingerbreadth direction in the planar direction of the opposite side face to body;

[0019] a finger insertion restriction portion for restricting the advance of the insertion of the finger from the finger insertion opening in the finger insertion cavity, is provided in the vicinity of the finger application point.

[0021] The finger insertion restriction portion is provided at a place of the interlabial pad so that a ball of finger inserted into the finger insertion cavity stays there and pushes open

[0028] According to an implementation of the interlabial pad, the finger insertion restriction portion is formed as a portion where a part of the finger insertion cavity is made narrow.

[0030] According to another implementation of the interlabial pad, the finger insertion restriction portion is formed by binding the opposite side face to body each other.

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[0032] By this, a wearer can fit the long convex area deeply into the back of the labia to prevent the occurrence of a gap between the interlabial pad and the labia.

[0033] In an area corresponding to the finger insertion restriction portion, even if a finger is inserted into the finger insertion opening, the state of narrowed width at the top of the long convex area where the interlabial pad is folded and maintained as it is. So, the top portion can be a starting point to insert the long convex area into a position near the ostium vaginae. A wearer can tightly fit the top of the long convex area into the ostium vaginae that is situated in the penitralia of the interlabial space (vestibule) using a ball of a finger in the top joint inserted in the finger insertion opening through the interlabial pad.

[0034] Further, a ball of a finger contacts the position corresponding to the top of the long convex area in the finger insertion opening formed inside of the long convex area. Consequently, the interlabial pad can be fixed by moving the long convex area along the vulva slit using a ball of a finger when fixing the interlabial pad.

[0035] In addition, since the long convex area is formed by folding the interlabial pad, it is deformed according to the shape of a finger inserted into the finger insertion opening formed inside of a part of the longer convex area when fixing the interlabial pad. However, when a finger is pulled out, it can be transformed according to the shape between the labia. As the result, the body face side of the interlabial pad can be tightly fixed to inside of the labia when fixing an interlabial pad in spite of the shape differences of the labia of wearers.

[0036] According to still another implementation of the interlabial pad, a width dimension in the lateral direction of the finger insertion cavity is formed to reduce gradually from the finger insertion opening to the finger insertion restriction portion.

[0037] According to an implementation, the finger insertion opening is formed in such a way that it gets smaller gradually from the finger insertion opening (largest) to the finger

insertion restriction portion (smallest). Consequently, a finger inserted along inside of the opposite side to the body side from the finger insertion opening to the finger insertion opening is guided gradually and smoothly into the finger insertion restriction portion. As the result, accidents such as a break of a sheet provided at the opposite side of body by movement of a finger inserted into the finger insertion opening or a poor bonding between the opposite side to the body side and the mini sheet piece can be prevented.

[0039] According to the implementation, the finger insertion opening is provided at the position 20% to 50% from the front end of an interlabial pad. The finger insertion restriction portion is positioned 60% to 100% from the front end of the interlabial pad. So, the interval between the finger insertion opening and the finger insertion restriction portion in the longitudinal direction falls under the range from 10 to 80% of the longitudinal dimension of the interlabial pad.

[0041] Since the interval dimension from the finger insertion opening to the finger insertion restriction portion is 80% or less of the longitudinal dimension of the interlabial pad, the mini sheet piece does not prevent a finger from pulling out from the finger insertion opening after fixing the interlabial pad. So, a finger can be pulled out smoothly, and positional displacement of the interlabial pad caused by the contact between the

[0042] According to an implementation of the interlabial pad, the finger insertion restriction portion is formed to position near one end edge in the longitudinal direction of the opposite side face to body.

[0044] According to an implementation of the interlabial pad, a fingertip exit for protruding the nail tip of the inserted finger is formed, in the finger insertion restriction portion.

[0046] According to an implementation of the interlabial pad, the finger insertion restriction portion is formed at a position biased to the center thereof by a predetermined dimension in the longitudinal direction from one end edge in the longitudinal direction of the opposite side face to body.

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the rear end of the interlabial pad. So, the interlabial pad covers a fingertip like a hood (refer to FIG. 8) and makes a wearer detect the position of the ostium vaginae using whole surface of a finger ball in the top joint including the fingertip. Consequently, a wearer can detect the ostium vaginae easily and fix the interlabial pad to an appropriate position more securely.

[0048] Also, adhesion of menstrual blood not only to a finger inserted into the finger insertion opening but also a nail sticking out from the nail tip escapement can be prevented since the interlabial pad covers a nail protruding from the nail tip escapement.

[0049] According to an implementation of the interlabial pad, a finger insertion compulsory portion is formed for tilting compulsorily the finger insertion direction to the opposite side face to body toward the finger insertion restriction portion in the finger insertion cavity.

[0050] According to another implementation, insertion direction of a finger is forced to slant in the direction of opposite side to the-body side due to the finger insertion direction forcing portion in the process of inserting a finger from the finger insertion opening into the finger insertion opening when fixing an interlabial pad. Consequently, a ball of a finger in the top joint can be fit to the opposite side to the body side more securely at the point when the fingertip reached the finger insertion restriction portion and the position of the ostium vaginae can be detected by a ball of a finger through each sheet and absorbent body more securely.

[0051] According to another implementation, the finger insertion compulsory portion is formed by the shape of folding of the mini sheet piece into the finger insertion cavity.

[0052] A part of the mini sheet piece is folded in the finger insertion opening in such a way that the interval between the mini sheet and the back side sheet decreases gradually. So, a finger is inserted in such a way that the outside of a finger (nail side) touches the mini sheet piece whose distance dimension against the opposite side of body decreases

gradually starting from the finger insertion opening in the process of inserting a finger from the finger insertion opening into the finger insertion opening when fixing the interlabial pad. Consequently, a fingertip (tip of a nail) can be guided to the finger insertion restriction portion more smoothly. As the result, accidents such as a break of the opposite side to the body side by movement of a finger inserted into the finger insertion opening or poor bonding between the opposite side to the body side and the mini sheet piece can be prevented.

[0054] According to still another implementation of the invention, the interlabial pad and a sanitary napkin can be used at the same time. Some women use several napkins layered when an amount of menstrual blood is large. However, there were problems such as bulky feeling, outer appearance change. In addition, sanitary napkins are layered on areas other than a vicinity of the ostium vaginae where layered pads are not required resulting rash, excessive humidity. In this respect, with the interlabial pad according to the present invention, sanitary products are layered only on the labia and their vicinity having little effect on wear feeling and outer appearance, and in addition, occurrence of excessive humidity and rash around hips can be reduced. Further, it becomes possible that only the interlabial pads according to the present invention are changed without replacing sanitary napkins. A wearer does not have to carry auxiliary sanitary napkins that have a conspicuous size. Sanitary napkins here may include not only napkins sold as products for absorbing menstrual blood but also vaginal discharge absorbing sheets.

[0056] The pad can be used for incontinence absorb pad. That is ostium vaginae where the menstrual blood is discharged and a urethral meatus where urine is discharged locate between labia, and the interlabial pad of the present invention to be used between labia can absorb urine also.

[0064] According to an implementation of the prevention , a wearer can know the unsealing direction to expose the finger insertion opening without opening the wrapping

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container. Consequently, it prevents a wearer from mistaking an unsealing direction. It also makes the direction to unseal the wrapping container and the direction to insert a finger into the finger insertion opening always aligned.

[0065] Further, the finger insertion opening will appear according to the unsealing operation where the wrapping container is unsealed from the near side of a wearer. In this state, a finger can be easily inserted into the finger insertion opening.

[0066] (17) With regard to an wrapping body the mini sheet piece in the interlabial pad is folded outward in a shape swelling toward the body side.

[0067] According to an implementation of the invention, the finger insertion opening will naturally open since the folded mini sheet piece returns to the original shape when the wrapping container is unsealed. So, a wearer can easily know the position to which a finger is inserted and can insert a finger into the finger insertion opening more quickly and smoothly.

BRIEF DESCRIPTION OF THE DRAWINGS

[0068] FIG. 1 is a perspective view of an interlabial pad according to the example of the present invention;

[0069] FIG. 2 is a cross section diagram in I-I view of the interlabial pad shown in FIG. 1 according to the example of the present invention;

[0070] FIG. 3 is a cross section diagram in II-II view of the interlabial pad shown in FIG. 1 according to the example of the present invention;

[0071] FIG. 4 is a cross section diagram in III-III view of the interlabial pad shown in FIG. 1 according to the example of the present invention;

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[0072] FIG. 5 is a schematic plane view indicating the state of a finger in dotted lines when a wearer inserted a finger into the finger insertion opening using the interlabial pad according to the example of the present invention;

[0073] FIG. 6 is a schematic side view indicating the state of a finger in dotted lines when a wearer inserted a finger into the finger insertion opening using the interlabial pad according to the example of the present invention;

[0074] FIG. 7 is a schematic diagram to explain the state that the interlabial pad is fixed to the interlabial space according to the example of the present invention;

[0075] FIG. 8 is a schematic diagram to explain the state that the interlabial pad according to the example of the present invention is fixed to the interlabial space, indicating the state that the interlabial pad is pinched at the specified position of the interlabial space with a finger inserted into the finger insertion restriction portion;

[0076] FIG. 9 is a schematic diagram to explain the state that the interlabial pad without the finger inserting restriction portion is fixed to the interlabial space;

[0077] FIG. 10 is a schematic cross section diagram to explain the cross sectional structure of the finger insertion restriction portion positioned at the rear end of the interlabial pad according to the example of the present invention, showing the state only the lower regions of the sides opposite to the body of the back side sheet are bonded to each other;

[0078] FIG. 11 is a schematic cross section diagram to explain the cross sectional structure of the finger insertion restriction portion positioned at the rear end of the interlabial pad according to the example of the present invention, showing the state that almost all regions of sides opposite to body of the back side sheet are bonded to each other;

[0079] FIG. 12 is a schematic cross section diagram to explain the cross sectional structure of the finger insertion restriction portion according to the example of the present invention, showing the state that the sides opposite to body of the back side sheet are bonded with an adhesive in such a way that a space of the long convex area is crossed;

[0081] FIG. 14 (a) shows the state that a finger is inserted into the interlabial pad wherein the mini sheet piece is formed to reach the end edge of the side opposite to body of the back side sheet, and the finger insertion restriction portion is formed being positioned near one end edge in the longitudinal direction of the side opposite to body, FIG. 14(b) shows the state that a finger is inserted into the interlabial pad wherein the mini sheet piece is formed to reach a position distant by a specified dimension from the end edge of the opposite side to the body side of the back side sheet, and the finger insertion restriction portion is formed at a position to the center by a specified dimension in the longitudinal direction on the opposite side to the body side, and FIG. 14(c) is a schematic diagram to explain the state that a finger is to be inserted into the interlabial pad wherein the mini sheet pieces are separated and provided in parallel to the longitudinal direction of the opposite side to the body side;

[0083] FIG. 16 is a schematic side view showing the state of a finger with dotted lines inserted into the finger insertion opening using the interlabial pad where a nail tip escapement is formed at the finger insertion restriction portion;

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escapement from which a nail tip protrudes is formed at the finger insertion restriction portion;

[0085] FIG. 18 is a schematic diagram to explain the length of total inside perimeter of the finger insertion opening of the interlabial pad according to the example of the present invention;

[0086] FIG. 19 is a schematic diagram to explain the linear dimension in the lateral direction of the interlabial pad;

[0087] FIG. 20 is a schematic perspective view showing a transformational example of the interlabial pad according to the the present example and the structure where the finger insertion direction restriction portion is formed with the shape of the mini sheet piece folded into the finger insertion opening;

[0088] FIG. 21 is a schematic diagram showing an example of the transformed interlabial pad according to the example of the present invention and the state that the inserting direction of a finger is forced to slant towards the opposite side to the body side facing the finger insertion restriction portion;

[0089] FIG. 22 is a cross section diagram of a cross section VI-VI of the interlabial pad in FIG. 21 showing the state of a finger in the finger insertion opening;

[0090] FIG. 23 is a cross section diagram of a cross section V-V of the interlabial pad in FIG. 21 showing the state of a finger in the finger insertion opening;

[0091] FIG. 24 is a cross section diagram of a cross section IV-IV of the interlabial pad in FIG. 21 showing the finger insertion restriction portion;

[0092] FIG. 25 is a schematic view to explain a method to measure the peel strength of adhesives for evaluating the adhesive force thereof;

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restrict the progress of finger insertion to be the end of the finger insertion opening 6. In the interlabial pad, the cross section area of the substantial chevron shaped space formed inside of the long convex area 2 is reduced gradually along the longitudinal direction. The cross section area is reduced approximately as that of a finger at the finger insertion opening 7 situated near the center of the longitudinal direction. Further, the cross section area is reduced at the finger insertion restriction portion 8 along the longitudinal direction so that the sides opposite to body on the back side sheet 4 are bonded to each other as shown in FIG. 4.

[0106] As described above, the finger insertion opening 6 is formed in such a way that the width dimension along the lateral direction decreases gradually towards the finger insertion restriction portion 8 starting from the finger insertion opening 7. So, a fingertip in the lateral direction of the side opposite to body is guided to the finger insertion restriction portion 8 gradually and smoothly only by inserting a finger from the finger insertion opening 7 to the finger insertion opening 6 along the inside of the side opposite to body. Consequently, breaks, etc of the sheet provided on the side opposite to body due to the finger insertion action into the finger insertion opening 6 can be prevented.

[0107] [Wearing condition]

[0108] Wearing condition of the interlabial pad according to the example will now be explained. FIG. 5 is a schematic plane view showing the state that a finger is inserted into the finger insertion opening 6 of the interlabial pad according to the example. FIG. 6 is a schematic side view of the state that a finger is inserted into the finger insertion opening 6 of the interlabial pad according to the example. FIG. 7 is a schematic diagram to explain the state that the interlabial pad according to the example is fixed to the labia 18. FIG. 8 is a schematic diagram to explain the state that the ostium vaginae 18a is detected by a finger inserted in the finger insertion opening 6 of the interlabial pad according to the example. FIG. 9 is a schematic diagram to explain the state that the ostium vaginae 18a is detected by a finger inserted in the finger insertion opening of an interlabial pad without the finger insertion restriction portion.

[0109] The interlabial pad according to the example should be fixed to a fingertip before using the interlabial pad. Wearing to a fingertip is performed by inserting a finger into the finger insertion opening 6 from the finger insertion opening 7. In this case, as shown in FIG. 5 and 6, a finger of a wearer is inserted to the position up to the finger insertion restriction 8 along the arrow direction in the figures. However, the fingertip does not protrude out of the interlabial pad due to the finger insertion restriction portion 8 and stable insertion state of the finger is maintained.

[0111] On the other hand, in an interlabial pad without a finger insertion restriction portion as shown in FIG. 9, a ball of a finger in the top joint may be provided in a position that is not appropriate for detecting the ostium vaginae 18a. So, in some cases, it is required to perform fine adjustment of the position of the interlabial pad after detecting the ostium vaginae 18a. Further, even if a wearer detected the most appropriate position for fixing the interlabial pad, a positional displacement of finger against the interlabial pad occurs and there is a possibility that the interlabial pad can not be fixed to the position that has been detected with effort because the positional relationship between the finger and the interlabial pad is not stable. In this respect, since positional displacement of the finger against the interlabial pad according to the present invention is prevented, the interlabial pad can be fixed to the most appropriate position easily.

[0113] Structure of the finger insertion restriction portion provided in the interlabial pad

according to the example will now be explained.

[0115] As shown above, the finger insertion restriction portion 8 is provided in the finger insertion opening 6 on the side opposite to body of the interlabial pad according to the example. The finger insertion restriction portion 8 is formed in the chevron space of the finger insertion opening 6 shown above by bonding the opposite sides to body of the back side sheet 4 to each other in the lateral direction of the interlabial pad. It stops the progress of finger insertion into the finger insertion opening 6 by narrowing the area of the space.

[0117] Structure of the finger insertion restriction portion 8 is formed, specifically, for example, in a part of area where sides opposite to body of the back side sheet 4 contact to each other as shown in FIG. 10 or in almost whole area where sides opposite to body of the back side sheet 4 contact to each other as shown in FIG. 11 of the marginal area (the rear end area of the interlabial pad forming a bonding area between the surface side sheet 3 and the back side sheet 4 where no absorbent body exists) situated at the rear end of the long convex area 2 of the interlabial pad, by bonding the surface side sheet 3 and the back side sheet 4 by any one of or combination of heat embossing processing, hot melt type adhesives, etc.

[0119] The peel strength of the bonded area of the finger insertion restriction portion 8 is preferably 100 mn/25 mm or more. A risk that a finger inserted into the finger insertion opening 6 peels and protrudes from the finger insertion restriction portion 8 can be evaded by this peel strength.

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[0122] Further, since the long convex area 2 is formed by just folding the main body of the interlabial pad, it can be transformed according to the shape of the finger when fixed. A wearer can detect without sense of discomfort the position of the ostium vaginae that is positioned at the penetralia part (vestibule) with a ball of a finger in the top joint inserted into the finger insertion opening 6 through the sheet 3, 4 and the absorbent body 5 shown above. After fixing, the interlabial pad is fit to the interlabial space tightly since the long convex area 2 can be transformed according to the interlabial space.

[0124] The mini sheet piece now will be explained. FIGS. 13A-D illustrate a schematic view to explain the bonding part between the mini sheet piece 1 and the side opposite to body of the back side sheet 4. FIG. 14 is a figure to explain the state that mini sheet pieces` 21 that are different from the mini sheet 1 in shape are attached to the side

[0125] [Length of the mini sheet piece]

[0127] Further, the length of the mini sheet piece 1 is preferably 80% or less, more preferably 70% or less to the longitudinal direction of the interlabial pad. "linear dimension" of the mini sheet piece plays a role to denote "the positional relationship between the finger insertion opening 7 and the finger insertion restriction portion 8 in the longitudinal direction of the interlabial pad" and at the same time plays a role to "suggest the finger insertion direction". If the length is 80% or more to the longitudinal dimension of the interlabial pad, the mini sheet and the back side sheet are almost completely overlapped, and the function to "suggest the finger insertion direction" is not fulfilled sufficiently. As the result, a wearer may not be able to identify the finger insertion opening 7 and insert a finger therein. In this respect, by providing the mini sheet piece 1 having the dimension shown above, the problems can be evaded, and quick and smooth wearing of the interlabial pad on a fingertip is secured.

[0129] In the interlabial pad according to the present invention, the bonding area 9a between the surface side sheet 3 and the back side sheet 4 forms the side edge of the interlabial pad in the lateral direction. As shown in FIG. 13(a), if the bonding area 9b of the mini sheet piece 1 and the back side sheet 4 is positioned and fixed to this side edge area, the side edge of the interlabial pad becomes hardened, which may cause

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deterioration of wearing feeling.

[0130] This problem can be evaded by providing a bonding area other than the side edge shown above to fix the mini sheet piece 1. In this case, for example, as shown in FIG. 13(b), if the bonding area 9b between the mini sheet piece 1 and back side sheet 4 is positioned outside of the bonding area 9a, as shown FIG. 13(c), the bonding area 9b is likely to apart from the back side sheet 4 according to the action of a wearer, generating friction to skin to apply stimulus to a wearer. So, as shown in FIG. 13(d), the positions of bonding area 9a and 9b is preferably displaced, and the bonding area 9b is preferably provided in the position nearer to the center in the lateral direction of the interlabial pad than the bonding area 9a.

[0131] It is possible to use pressure-sensitive hot melts, thermo-sensitive hot melts, etc. For the adhesive to fix the mini sheet 1. It is possible to adopt sheet pattern, linear pattern, spiral pattern, dot pattern, etc for application of the adhesive. The mini sheet piece 1 may be cut in advance to conform to the fixing position shown above. The cutting process may be performed at the same time as other sheets with only the bonding position being different from other sheets. <non-bonding area of the mini sheet piece in the lateral direction of the interlabial pad>

[0132] The relationship between the shape of the mini sheet piece and the finger insertion restriction portion will now be explained. As shown in FIG. 14(a), if the mini sheet piece 21 forms the same shape as a part of the interlabial pad 20 and fixed in such a manner that it does not have non-bonding areas except the finger insertion opening 27, it is possible to provide the finger insertion restriction portion 28 at the rear end 20a of the interlabial pad 20. On the other hand, as shown in FIG. 14(b), if the mini sheet piece 21 is fixed in such a way that the second non-bonding area 27b exists in addition to the first non-bonding area 27a forming the finger insertion opening with the side opposite to the interlabial pad 20, the second non-bonding area 27b is provided in the rear of the finger inserting restriction portion 28. By this the mini sheet piece 21 is provided in such a way that outside of a fingertip (nail side) is covered and a fingertip (nail side) is guided to the

finger insertion restriction portion 28 securely resulting in reducing troubles that the ostium vaginae is not easily detected because a ball of a finger in the top joint is removed from the side opposite to body in the finger insertion opening 6. Further, since the bonding area between the interlabial pad 20 and the mini sheet piece 21 can be reduced, the area hardened by bonding them is reduced to improve wearing feeling.

[0134] [nail tip escapement]

[0136] FIG. 15 is a schematic plan view showing in broken lines the state of a finger inserted into the finger insertion opening of the interlabial pad where a nail tip escapement is formed at the finger insertion restriction portion. FIG. 16 is a schematic

side view showing the state of a finger inserted into the finger insertion opening of the interlabial pad where a nail tip escapement is formed at the finger insertion restriction portion. FIG. 17 is a schematic end elevation of FIG. 15 seen from the sagittal direction p.

[0138] With this structure, as shown in FIG. 16, only a nail tip can be protruded from the nail tip escapement 11 with the finger staying at the position where the finger insertion restriction portion 8 exists. By this, as shown in FIG. 17, even a wearer with longer nails can retain the interlabial pad at the fingertip by protruding only a nail tip from the nail tip escapement 11 in such a state that a ball of a finger in the top joint contacts the back side sheet 4 at the vicinity of the finger insertion restriction portion 8 that is the most appropriate for detecting the ostium vaginae.

[0140] [Dimension of finger insertion opening]

[0142] In FIG. 18, the sections not required for explaining the inside perimeter of the finger insertion opening 7 are denoted in dashed lines, wherein the inside perimeter of the finger insertion opening 7 is the distance shown by 1.

[0143] The total inside perimeter of the inside of the finger insertion opening 7 shown by "I" in FIG. 18 is preferably 30 to 120 mm and more preferably 40 to 80 mm. If the total inside perimeter length of the finger insertion opening 7 is smaller than 30 mm, the finger insertion opening 7 itself gets smaller to make insertion and pulling out of a finger difficult. If it is larger than 120 mm, it becomes hard to make a ball of a finger securely in touch with the back side sheet 4 in the finger insertion opening 6 resulting in poor retention of the interlabial pad by a finger to cause troubles in fixing the interlabial pad.

[0145] The apparent dimension of the interlabial pad will now be explained. FIG. 19 is a figure to explain the linear dimension of the interlabial pad in the lateral direction.

[0146] The longitudinal direction of the interlabial pad is preferably 50 to 160 mm, more preferably 80 to 130 mm. With regard to this, if the linear dimension of the longitudinal direction is longer than 160 mm, the friction generated between the area that is not pinched by the interlabial space and shorts or sanitary napkins may exceed the pinching force by both labia resulting in removal of the interlabial pad. In the meantime, if the linear dimension in the longitudinal direction is less than 50 mm, since the area to be pinched by the labia becomes smaller, the contact area between the labia and the interlabial pad decreases to cause removal of the interlabial pad.

[0147] Apparent linear dimension of the interlabial pad in the lateral direction is preferably 10 to 60 mm, more preferably 20 to 40 mm. If the linear dimension in the lateral direction is longer than 60 mm, the area not pinched by the labia is rubbed by thighs of a wearer and the generated friction exceeds the pinching force by both labia resulting in removal of the interlabial pad. In the mean time, if the linear dimension of the lateral direction is shorter than 10 mm, since the area to be pinched between the labia becomes smaller, the contact area between the inside of the labia and the interlabial pad decreases to cause higher risk in removal of the interlabial pad.

[0148] "Apparent" used above denotes the distance between two points with the shortest linear dimension (falls under v in FIG. 19). This is a deliberate definition considering the case where the distance between two points in plan extended from a three dimensional shape is sometimes used as an actual distance (falls under w in FIG. 19) in relation to manufacturing process.

[0150] Other examples of the interlabial pad according to the present invention will now be explained.

[0152] In the interlabial pad 30 according to the example, as shown in FIG. 20, the finger insertion direction forcing portion 39 is formed to force the insertion direction of a finger in the finger insertion opening 36 to be slanted towards the opposite side of body of the back side sheet 34 facing the finger insertion restriction portion 38.

[0160] <Absorbent body>

[0163] It is preferable for the absorbent body, although any material can be used as long as it is capable of absorbing and holding liquid (body fluid), to be bulky, hard-to-be deformed, less chemically stimulant, and highly flexible to fit into the labia. Specifically, a nonwoven sheet in which, 50 to 150 g/m² of pulp selected from the range of the fiber length of 1 to 10 mm is laminated on the garment face side and, on the body face side,

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150 to 250 g/m² of a mixture obtained by mixing 60 to 90% of rayon with 1.1 to 4.4 dtex fineness and 20 to 51 mm fiber length with 40 to 10% of natural cotton is laminated, which then to be formed into a sheet by dotted embossing to have 2 to 10 mm bulkiness, and more preferable to have 3 to 5 mm bulkiness. Thereby, liquid can be easily transmitted from the body face side to the garment face side resulting in the improvement of the absorbing and holding capacity. Furthermore, by providing a mesh spun lace nonwoven fabric of rayon with 1.1 to 4.4 dtex fineness and 25 to 51 mm fiber length by a specific weight per unit area of 15 to 40 g/m², the liquid transmitted from the body face side can be dispersed by the mesh spun lace to be induced to almost all over the region of the pulp layer. Therefore, more liquid can be effectively absorbed.

[0164] <Water impermeable sheet>

[0165] Materials that can prevent menstrual blood retained in an absorbent body from getting out of the interlabial pad can be used for water impermeable sheets. If they are moisture permeable, it is possible to reduce humidity and unpleasantness during wearing the interlabial pad.

[0166] Such materials include, for example, a sheet film wherein a synthetic resin is transformed into a membrane, an air permeable film made by filling an inorganic filler and performing pulling process, a laminated material wherein a paper, an unwoven cloth and a film are combined, an air permeable liquid shutoff sheet having capillaries arranged towards absorbent body with capillaries hole area rate 10 to 30% and hole diameter 0.1 to 0.6 mm.

[0167] Further, when considering flexibility not spoiling wearing feeling, for example, a film selected from the range of specific weight per unit area from 15 to 30 g/m² composed mainly of low density polyethylene (ldpe) resin with density of 0.900 to 0.925 g/cm³ is preferably used. More preferably, the film is emboss processed to reduce contact ratio and friction resistance by providing convex bossing in order to reduce a risk that the interlabial pad falls off from the labia due to a large friction caused by contact with other

[0168] <Mini sheet piece>

[0173] Nonwoven fabrics include: spun lace nonwoven fabrics made from complex synthetic fibers such as pe/pp, pe/pet, pp/pp having thermal shrinkage property, wherein core component has a high melting point and the sheath component has a lower melting point, and fibers are laced by water pressure; shrink type nonwoven fabrics wherein

[0174] More specifically, preferable materials rich in flexibility and drape feeling include shrink type nonwoven fabrics made from compound synthetic fiber such as pe/pp, pe/pet, pp/pp with fineness in the range from 1.1 to 4.4 dtex and the length in the range from 7 to 51 mm, having thermal shrinkage property, wherein the core component has a high melting point and sheath component has a lower melting point, a specific weight per unit area is adjusted in the range from 10 to 60 g/m². Further, laminated types of the materials can be also used. Materials without extensivity applied with extensivity before use included: among nonwoven fabrics, through air nonwoven fabrics made from complex synthetic fibers such as pe/pp, pe/pet, pp/pp having thermal shrinkage property, wherein core component has a high melting point and the sheath component has a lower melting point; spun lace nonwoven fabrics wherein fibers are entangled by water pressure; spun bond nonwoven fabrics transformed into a sheet by layering continuous fibers; needle punch nonwoven fabrics wherein fibers are entangled to one another by needles; sms nonwoven fabrics wherein spun bond and melt-blown are layered in multiple layers to form a sheet; porous foam films; films mainly composed of pe resins. They may be used either alone or in combination of two or more.

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[0176] <adhesives>

[0178] [Configuration of the interlabial pad applied with biodegradability, water dispersibility and water solubility]

[0180] In this specification, "biodegradability" means that a substance is decomposed into gas such as carbon dioxide or methane, water, and biomass under anaerobic or aerobic condition according to the natural process under the existence of bacteria

[0181] <Water permeable sheet >

[0183] For other materials, an acetate, a single synthetic fiber and a tow that is a continuous fiber composed of laminated bodies may be used by adjusting them to the range of specific weight per unit area from 50 to 300 g/m² and fibrillating their fibers.

[0185] Nonwoven cloth sheets obtained by needling can be used for absorbent bodies. It is desirable to use carboxymethyl cellulose fibers considering biodegradability of super

[0186] <Water impermeable sheet >

[0188] It is desirable to use laminated papers where films made from polylactic acid are laminated with tissues selected from the range of thickness of 10 to 20.μ. And specific weight per unit area of 15 to 20 g/m² and further composite area ratio when laminated is 5 to 40% considering maintenance of leakage resistance under hyper humidity and lower loads to septic tanks.

[0190] Materials usable for the mini sheet piece include: films, spun bond nonwoven fabrics, melt-blown nonwoven fabrics, etc made from biodegradable materials such as polylactic acid; polybutylene succinate; films and nonwoven fabrics, etc made from soluble materials such as pva, cmc; water dispersible tissues, spun lace nonwoven fabrics, etc composed mainly of cellulose fibers, recycled cellulose fibers, etc.

[0192] <Bonding methods>

[0194] It is possible to make a pad contact the interlabial space or external genitals by forming adhesion on a part of the body-facing side of the surface side sheet. It is also possible to prevent gaps from being generated between the pad and the body even when postures of a wearer are changed suddenly. So, a wearer can act freely without anxiety and restraining her activities.

[0196] Besides them, it is possible to use pressure sensitive hot melts to form adhesive areas. Pressure sensitive hot melts are obtained by melting and blending adhesiveness granting agents such as terpene resins, rosin resins; and plasticizers such as waxes with synthetic rubber resins such as sis, sbs, sebs, seps as a main component. Further, it is also possible to use silicone resin adhesives. Example of silicone resin adhesives include mixtures composed mainly of silicone resins and fluorocarbon resins, mixed with crosslinking agents such as platinum, molybdenum, antimony, and also mixed with plasticizers such as esters waxes, glycerin, machine oils.

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stability are the ones where 15 to 25% of sebs, 15 to 35% of a plasticizer by weight, 40 to 70% of an adhesiveness granting agent by weight are melted and blended. 0.1 to 1.0% of antioxidants, fluorescence inhibitors by weight may be added to this kind of pressure sensitive hot melt adhesives.

[0199] Adhesives may be placed in plane, dot pattern, grid pattern, stripe pattern, etc. Application positions of adhesives are not particularly limited so far as they make fixing on body possible. It is particularly desirable to apply in stripe pattern of about 1 to 5 mm width near the both sides of the surface side sheet considering pubic hairs at the near side of the labia. An example of evaluating methods for the adhesive force will now be explained. These evaluation methods are to measure peel strength (refer to FIG. 25) and shear strength (refer to FIG. 26) of adhesives using a constant speed stretch tensile testing machine and stainless steel boards of 80 mm.times.50 mm (length.times.width). Before starting an evaluation test, an adhesive is applied by 25 mm.times.50 mm (width.times.length) on a polyethylene film that has almost same size as the stainless board. The film is let stand for 30 minutes under room temperature (20.degree. C.). Then, the polyethylene film is gently put on the stainless board so that the adhesive contact the board. A roller with weight of 2 kg is applied by just one-way. After that, test strips are made by letting it stand under room temperature (20.degree. C.) For 30 minutes. In the peel-strength test, the polyethylene film of the test strip is peeled by pulling it toward a direction indicated by an arrow a in FIG. 25. In the shear strength test, the film is pulled toward a direction indicated by an arrow b in FIG. 26. With regard to the test conditions, chuck interval (clamping interval) is 70 mm and pulling speed is 100 mm/min. In this test, the measured value of the peel strength is preferably 100 to 200 mn/25 mm, shear strength is preferably 2900 to 15000 mn/25 mm. These values are decided considering loads to skin of a wearer.

[0200] [Wrapping body]

[0202] The interlabial pad 10 according to the example of the present invention may be, as shown in FIG. 27, wrapping body 51 contained in the wrapping container 50. This kind of wrapping body 51 can be carried one by one since the interlabial pads 10 are wrapped independently. So, it is possible to handle them cleanly and conveniently compared to the case where multiple interlabial pads are contained in a single wrapping container.

container 50 in the wrapping body 51 is formed with perforations. It can be opened by pulling it from the backside to front side of the drawing. Then, the finger insertion opening 7 is exposed at the unsealing opening and opened towards the unsealing opening. So, a wearer can insert a finger into the finger insertion opening 7 immediately.

[0206] INDUSTRIAL APPLICABILITY

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